



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS.
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/545,691 | 04/07/2000 | Barrie Gilbert | 1482-132 | 2100 |

7590 06/04/2004
MARGER JOHNSON & McCOLLOM P C
1030 SW Morrison Street
Portland, OR 97205

EXAMINER

SOBUTKA, PHILIP

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2684

23

DATE MAILED: 06/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/545,691

Applicant(s)

GILBERT, BARRIE

Examiner

Philip J. Sobutka

Art Unit

2684

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,3,9,10,13 and 15-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2,3,9,10,13 and 16-26 is/are allowed.
- 6) ☒ Claim(s) 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>21</u> | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Voinigescu et al (US 5,789,799) in view of Mitzlaff (US 5,307,512).

Consider claim 15. Voinigescu teaches an amplifier cell comprising first and second input terminals (Voinigescu, fig 9, RF & LO), first and second output terminals (Voinigescu, fig 9, IF), first input stage coupled to the first and second output terminals (Voinigescu, fig 9, Q1, Q2) and arranged to drive the first and second output terminals responsive to a first input signal received at the first input terminal; and a second input stage coupled to the first and second output terminals and arranged to drive the first and second output terminals responsive to a second input signals received at the second input terminal (Voinigescu, fig 9, Q3,Q6). Voinigescu lacks a teaching of the amplifier stages being class AB. Mitzlaff teaches that class AB operation has higher efficiency when constant envelope modulation schemes such as FM are employed (col 2, lines 62-65). It would have been obvious to one of ordinary skill in the art to modify Voinigescu to use AB stages for higher efficiency when in FM operation.

Allowable Subject Matter

2. Claims 2,3,9,10,13, and 16-26 are allowed.

Consider claim 2. The nearest prior art as shown in Voinigescu and Mitzlaff fails to teach an RF mixer comprising a mixer core having a LO input port, an IF output port and an input with an RF input section providing a current signal responsive to an RF input; wherein the RF input section includes: a transistor coupled to the input, and a

Art Unit: 2684

inductor coupled to the transistor to extend the dynamic range of the mixer; wherein the transistor includes a first terminal coupled to the input, a second terminal coupled to receive a reference signal, and a third terminal; and the inductor includes a first terminal coupled to the third terminal of the transistor and a second terminal coupled to receive the RF input.

Consider claim 9. The nearest prior art as shown in Voinigescu and Mitzlaff fails to teach an RF mixer comprising: a mixer core having a first input terminal for receiving a first current signal and a second input terminal for receiving a second current signal; a first sub cell coupled to the first input providing the first current signal responsive to an RF input signal and having a first transistor and a first inductor coupled to the first transistor to extend the dynamic range of the mixer; and a second sub cell coupled to the second input terminal of the mixer core to provide a second current signal to the mixer core responsive to an RF input signal, the second sub cell having a second transistor to extend the dynamic range of the mixer; wherein the first transistor includes a first terminal coupled to the first input terminal, a second terminal coupled to receive a reference signal and a third terminal; and the inductor includes a first terminal coupled to the third terminal of the transistor and a second terminal coupled to receive the RF input signal.

Consider claim 13. The nearest prior art as shown in Voinigescu and Mitzlaff fails to teach a current mirror comprising: a first transistor having a first terminal and a second terminal coupled together to cause the first transistor to operate as a diode, and a third terminal coupled to a common node; a first inductor coupled between an input and

the first terminal of the first transistor to reduce noise; a second transistor having a first terminal for transmitting an output signal, a second terminal coupled to the input terminal, and a third terminal; and a second inductor coupled between the third terminal of the second transistor and common node to reduce the noise.

Consider claim 16. The nearest prior art as shown in Voinigescu and Mitzlaff fails to teach the amplifier of claim 15 wherein the first AB input stage comprises a first transistor having a first terminal coupled to the first output terminal, a second terminal to receive a bias signal and a third terminal to receive the first input signal, and a first current mirror coupled between the first input terminal and the second output terminal.

Consider claim 22. The nearest prior art as shown in Voinigescu and Mitzlaff fails to teach the amplifier cell of claim 15 wherein each of the AB stages comprises: a common base transistor coupled between a first one of the input terminals; an inductor coupled between the common base transistor and a first one of the output terminals; and an inductively degenerated current mirror coupled between the first one of the input terminals and the other output terminal.

Consider claim 23. The nearest prior art as shown in Voinigescu and Mitzlaff fails to teach an RF input section for a mixer comprising: a first output terminal for a first current to a mixer; a second output terminal for a second current to the mixer; a first transistor having a first terminal coupled to the first output terminal, a second terminal coupled to receive a bias signal, and a third terminal coupled to a first RF input terminal for receiving a first RF input signal; a first diode coupled between the first RF input terminal and a common node; a second transistor having a first terminal coupled to the

Art Unit: 2684

second output terminal, a second terminal coupled to form a current mirror with the first diode, and a third terminal coupled to the common node.

Response to Arguments

3. Applicant's arguments filed 8-14-02 have been fully considered but they are not persuasive.

Applicant's arguments regarding the separation of mixer core and input stage with relation to the instant specification are not relevant since claim 15 does not recite a mixer core.

Conclusion

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip J. Sobutka whose telephone number is 703-305-4825. The examiner can normally be reached on Monday-Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 703-308-7745. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

Application/Control Number: 09/545,691
Art Unit: 2684

Page 6

Philip Sobutka

Pjs
May 25, 2004


NAY MAUNG
SUPERVISORY PATENT EXAMINER